

WHAT IS CLAIMED IS:

1. A multicolor image-forming material comprising:
an image-receiving sheet having an image-receiving
layer; and

at least four thermal transfer sheets each including
a support, a light-to-heat converting layer and an image-forming
layer, in which each of the thermal transfer sheets has a different
color,

wherein an image is formed by: superposing the
image-forming layer in each of the at least four thermal transfer
sheets on the image-receiving layer in the image-receiving
sheet, in which the image-forming layer is opposed to the
image-receiving layer; irradiating the image-forming layer
in each of the at least four thermal transfer sheets with a
laser beam; and transferring the irradiated area of the
image-forming layer onto the image-receiving layer in the
image-receiving sheet, and

each of the light-to-heat converting layers in the
at least four thermal transfer sheets has a ratio of an optical
density (OD) to a layer thickness: OD/layer thickness (μm unit)
of 0.57 or more.

2. The multicolor image-forming material as claimed
in claim 1, wherein the OD/layer thickness (μm unit) is 1.95
or more.

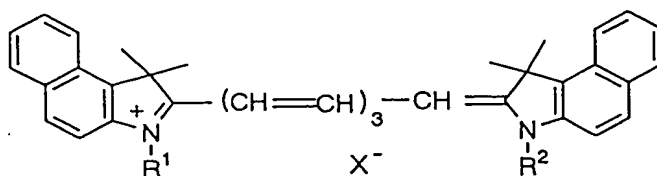
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3. The multicolor image-forming material as claimed in claim 1, wherein the OD/layer thickness (μm unit) is 4.01 or more.

4. The multicolor image-forming material as claimed in claim 1, wherein the light-to-heat converting layer contains a light-to-heat converting material and the light-to-heat converting material is at least one of an organic dye and a carbon black, in which the organic dye is selected from the group consisting of a cyanine dye, an anthraquinone dye, an azulene dye and a phthalocyanine dye.

5. The multicolor image-forming material as claimed in claim 4, wherein the cyanine dye is an indolenine dye.

6. The multicolor image-forming material as claimed in claim 4, wherein the organic dye has a structure represented by formula:



wherein R^1 and R^2 , which are the same or different, each independently represents an alkyl group, an alkenyl group,

or an aryl group; X represents an anion; and the naphthalene ring may be substituted or unsubstituted.

7. The multicolor image-forming material as claimed in claim 1, wherein the at least four thermal transfer sheets have four or more colors including yellow, magenta, cyan and black, and each of the at least four thermal transfer sheets has a different color, and each of the light-to-heat converting layers in the at least four thermal transfer sheets has a different optical density per the light-to-heat converting layer, in which each of the light-to-heat converting layers in the at least four thermal transfer sheets each having a different color has the same optical density per unit thickness of the light-to-heat converting layer and has a different layer thickness.

8. The multicolor image-forming material as claimed in claim 7, wherein each of the light-to-heat converting layers in the at least four thermal transfer sheets each having a different color is formed with the same coating solution.

9. The multicolor image-forming material as claimed in claim 7, wherein the light-to-heat converting layer in the black thermal transfer sheet has the lowest optical density in the at least four thermal transfer sheets.

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10. The multicolor image-forming material as claimed in claim 7, wherein the image-receiving sheet includes a support, and each of the light-to-heat converting layers in the at least four thermal transfer sheets each having a different color contains a matting agent in a different amount.

11. The multicolor image-forming material as claimed in claim 10, wherein each of the light-to-heat converting layers in the at least four thermal transfer sheets each having a different color has the same content of the matting agent per unit thickness of the light-to-heat converting layer and has a different layer thickness.

12. The multicolor image-forming material as claimed in claim 10, wherein each of the light-to-heat converting layers in the at least four thermal transfer sheets each having a different color is formed with the same coating solution.

13. The multicolor image-forming material as claimed in claim 10, wherein the light-to-heat converting layer in the black thermal transfer sheet has the lowest content of the matting agent in the at least four thermal transfer sheets.

14. The multicolor image-forming material as claimed

in claim 7, wherein the light-to-heat converting layer has an optical density of from 0.80 to 1.49 at peak wavelength of the laser beam.

15. The multicolor image-forming material as claimed in claim 7, wherein the light-to-heat converting layer contains a light-to-heat converting agent and the light-to-heat converting agent is a compound other than carbon black, graphite and colloidal silver.

16. The multicolor image-forming material as claimed in claim 15, wherein the light-to-heat converting agent is a cyanine dye.

17. The multicolor image-forming material as claimed in claim 1, wherein the light-to-heat converting layer contains a light-to-heat converting material and a resin, and the half value width of the maximum absorbance at wavelength of 700 to 1,200 nm of the light-to-heat converting layer is 200 nm or less.

18. The multicolor image-forming material as claimed in claim 17, wherein the thermal transfer sheet includes an intermediate layer between the light-to-heat converting layer and the image-forming layer.

19. The multicolor image-forming material as claimed in claim 17, wherein the light-to-heat converting material is an infrared absorbing dye.

20. The multicolor image-forming material as claimed in claim 19, wherein the infrared absorbing dye is a cyanine dye.

21. The multicolor image-forming material as claimed in claim 17, wherein irradiation is performed with a laser having an output of 50 mW or more at linear velocity of 7 m/s or more.

22. The multicolor image-forming material as claimed in claim 1, wherein each of the light-to-heat converting layer and the image-forming layer contains a water-insoluble resin and the recorded image has a resolution of 2,400 dpi or more.

23. The multicolor image-forming material as claimed in claim 22, wherein the resin in the light-to-heat converting layer is soluble in a hydrophobic solvent having an SP value of from 16 to 22.

24. The multicolor image-forming material as claimed

in claim 22, wherein the resin in the image-forming layer is soluble in a nonaqueous solvent having an SP value of from 16 to 30.

25. The multicolor image-forming material as claimed in claim 22, wherein a hydrophobic solvent is used for dissolving the resin when the light-to-heat converting layer is provided, and a nonaqueous solvent is used for solving the resin when the image-forming layer is provided.

26. The multicolor image-forming material as claimed in claim 22, wherein the light-to-heat converting material in the light-to-heat converting layer has the solubility of 1 weight% or less in a coating solvent for forming the image-forming layer.

27. The multicolor image-forming material as claimed in claim 22, wherein the resin in the light-to-heat converting layer has the solubility of 1 weight% or less in a coating solvent for forming the image-forming layer.

28. The multicolor image-forming material as claimed in claim 22, wherein the resin in the light-to-heat converting layer has the solubility of 0.1 weight% or more in the coating solvent for forming the light-to-heat converting layer.

29. The multicolor image-forming material as claimed in claim 22, wherein the light-to-heat converting material has the solubility of 0.1 weight% or more in the coating solvent for forming the light-to-heat converting layer.

30. The multicolor image-forming material as claimed in claim 22, wherein the light-to-heat converting material is an infrared absorbing dye.

31. The multicolor image-forming material as claimed in claim 22, wherein the resin of the image-forming layer has the solubility of 0.1 weight% or more in the coating solvent for forming the image-forming layer.

32. The multicolor image-forming material as claimed in claim 22, wherein the thermal transfer sheet includes an intermediate layer between the light-to-heat converting layer and the image-forming layer.

33. The multicolor image-forming material as claimed in claim 1, wherein the transferred image has a resolution of 2,400 dpi or more.

34. The multicolor image-forming material as claimed

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in claim 33, wherein the transferred image has a resolution of 2,600 dpi or more.

35. The multicolor image-forming material as claimed in claim 1, wherein the recording area of the multicolor image is a size of 515 mm or more multiplying 728 mm or more.

36. The multicolor image-forming material as claimed in claim 35, wherein the recording area of the multicolor image is a size of 594 mm or more multiplying 841 mm or more.

37. The multicolor image-forming material as claimed in claim 1, wherein each of the image-forming layers in the at least four thermal transfer sheets has a ratio of an optical density (OD) to a layer thickness: OD/layer thickness (μm unit) of 1.50 or more.

38. The multicolor image-forming material as claimed in claim 37, wherein the OD/layer thickness (μm unit) is 1.80 or more.

39. The multicolor image-forming material as claimed in claim 38, wherein the OD/layer thickness (μm unit) is 2.50 or more.

40. The multicolor image-forming material as claimed in claim 1, wherein the image-forming layer in each of the at least four thermal transfer sheets and the image-receiving layer in the image-receiving sheet each has a contact angle with water of from 7.0 to 120.0°.

41. The multicolor image-forming material as claimed in claim 1, wherein the ratio of an optical density (OD) of the image-forming layer in each of the at least four thermal transfer sheets to a thickness of the image-forming layer: OD/layer thickness (μm unit) is 1.80 or more and the image-receiving layer in the image-receiving sheet has a contact angle with water of 86° or less.

42. A method for manufacturing the multicolor image-forming material as claimed in claim 1, which comprises performing a successive coating.

43. A method for forming a multicolor image, which comprises the steps of:

preparing: an image-receiving sheet having an image-receiving layer, and at least four thermal transfer sheets each including a support, a light-to-heat converting layer and an image-forming layer, in which each of the at least four thermal transfer sheets has a different color and each of the

light-to-heat converting layers in the at least four thermal transfer sheets has a ratio of an optical density (OD) to a layer thickness: OD/layer thickness (μm unit) of 0.57 or more;

superposing the image-forming layer in each of the at least four thermal transfer sheets on the image-receiving layer in the image-receiving sheet, in which the image-forming layer is opposed to the image-receiving layer;

irradiating the image-forming layer in each of the at least four thermal transfer sheets from the side of the support with a laser beam; and

transferring the irradiated area of the image-forming layer onto the image-receiving layer in the image-receiving sheet to record an image,

wherein the irradiated area of the image-forming layer is transferred onto the image-receiving sheet in a thin film.

44. The method for forming a multicolor image as claimed in claim 43, wherein the laser beam is a semiconductor laser beam.

45. The method for forming a multicolor image as claimed in claim 43, wherein the laser beam comprises multi-beams of two-dimensional array.

46. A method for preparing a color proof, which

comprises:

preparing: an image-receiving sheet having an image-receiving layer; and at least four thermal transfer sheets each including a support, a light-to-heat converting layer and an image-forming layer, in which each of the at least four thermal transfer sheets has a different color and each of the light-to-heat converting layers in the at least four thermal transfer sheets has a ratio of an optical density (OD) to a layer thickness: OD/layer thickness (μm unit) of 0.57 or more;

superposing the image-forming layer in each of the at least four thermal transfer sheets on the image-receiving layer in the image-receiving sheet, in which the image-forming layer is opposed to the image-receiving layer;

irradiating the image-forming layer in each of the at least four thermal transfer sheets from the side of the support with a laser beam;

transferring the irradiated area of the image-forming layer onto the image-receiving layer in the image-receiving sheet to record a full color image, wherein the irradiated area of the image-forming layer is transferred onto the image-receiving sheet in a thin film; and

transferring the full color image on the image-receiving layer onto an actual printing paper.